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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,556	07/29/2003	Andreas Eleftheriou	9-2993-486US	1804

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OGILVY RENAULT LLP (PWC)
1981 MCGILL COLLEGE AVENUE
SUITE 1600
MONTREAL, QC H3A 2Y3
CANADA

EXAMINER	
KIM, TAE JUN	

ART UNIT	PAPER NUMBER
3746	

DATE MAILED: 12/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/628,556	ELEFTHERIOU ET AL.	
	Examiner	Art Unit	
	Ted Kim	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 October 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1, 2, 12, 13, 15 are rejected under 35 U.S.C. 102(a or e) as being anticipated by Springer (6,532,731). Springer teaches a casing for a turbofan engine, substantially encasing at least a fan assembly 66a, a compressor assembly 46, a combustor assembly 47 and a turbine assembly 48, the casing comprising: a fan case portion; an intermediate case portion; and a gas generator case portion, wherein the fan case portion, the intermediate case portion and the gas generator case portion are integrally joined together 42, thereby forming an integral casing 42, a turbofan engine for an aircraft comprising: a rotating assembly including a propulsive fan portion 66a, a compressor portion 46, and a gas generator portion 47, the rotating assembly having an axial length; and a generally tubular casing 42 assembly enveloping the rotating assembly substantially along the axial length thereof and thereby defining a main flow path through the engine, wherein the casing assembly 48 is an integrated single piece of the same

material. The casing assembly further comprises a integral shroud section encircling a plurality of compressor blade tips of the compressor portion.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2, 5, 7, 8, 11, 12, 13, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stuart (4,790,133) in view of either Davies et al (3,720,060) or Udall et al. Stuart teaches a casing for a turbofan engine, substantially encasing at least a fan assembly 62, a compressor assembly 18, a combustor assembly 16 and a turbine assembly 22, the casing comprising: a fan case portion 54; an intermediate case portion 54; and a gas generator case portion 14, wherein the fan case portion, the intermediate case portion and the gas generator case portion appear integrally joined together, thereby forming an integral casing, a bypass turbofan engine comprising: at least a fan 62, a compressor 18, and a gas generator 16 disposed in flow series within the engine, and a bypass airflow defined around at least the compressor 16 and gas generator 16; and what appears to be a one-piece casing substantially encasing the fan, compressor and gas generator; a turbofan engine for an aircraft comprising: a rotating assembly including a propulsive fan portion 62, a compressor portion 18, and a gas generator portion 16, the

rotating assembly having an axial length; and a generally tubular casing assembly 54, 14 enveloping the rotating assembly substantially along the axial length thereof and thereby defining a main flow path through the engine, wherein the casing assembly 54 and 14 are each a single piece but it is not clear whether 50 is welded or otherwise rigidly fixed to both 54 and 14 to make an integrated single piece. Davies et al teach a bypass gas turbine fan where the exit vanes 14 are integrally attached to both the fan case 13 and the inner hub 41. Udall et al teach a bypass gas turbine fan where the frame 34 is integrally attached to both the fan case 18 and inner case 36 (col. 4, lines 1+). It would have been obvious to one of ordinary skill in the art to make the exit vanes 50 integrally with both the fan shroud and the core engine shroud 14, as taught by either Davies or Udall et al, in order to make a rigid and/or stronger attachment in which case the end result is an integral/one piece casing. The compressor shroud is also part of the integral casing. For claim 5, the individual fan case portion, the intermediate case portion and the gas generator case portion are *fabricated individually and welded together* is a product by process limitation. It is noted that the patentability of these claims is determined on the basis of the product formed and not the method by which it is produced *Ex parte Junger, 18 USPQ2d 1796 (BPAI 1991).*

"Patentability of claim to apparatus does not rest merely on difference in method by which apparatus operates or produces product; rather, it is apparatus itself that must be new and unobvious; however, if claim contains structural limitations sufficient to distinguish claim from prior art and meet novelty and nonobviousness

requirements, addition of further process limitations does not preclude patentability."

5. Claims 1, 2, 5-7, 11-13, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Udall et al (5,409,184) in view of Stuart (4,790,133). Udall et al teach a casing for a turbofan engine, substantially encasing at least a fan assembly 12, a compressor assembly 24, a combustor assembly 28 and a turbine assembly 30, the casing comprising: a fan case portion 18; an intermediate case portion 18; and a gas generator case portion 14, wherein the fan case portion, the intermediate case portion and the gas generator case portion are shown in sections and appear to be integrally joined together, thereby forming an integral casing, a bypass turbofan engine comprising: at least a fan , a compressor, and a gas generator disposed in flow series within the engine, and a bypass airflow defined around at least the compressor and gas generator; and what appears to be a one-piece casing 18, 14 substantially encasing the fan, compressor and gas generator; a turbofan engine for an aircraft comprising: a rotating assembly including a propulsive fan portion, a compressor portion, and a gas generator portion, the rotating assembly having an axial length; and a generally tubular casing assembly enveloping the rotating assembly substantially along the axial length thereof and thereby defining a main flow path through the engine, wherein the casing assembly appears to be an integrated single piece 18, 14. Udall specifically teaches the casing portions 18 and 14 are integrally joined by the frame (col. 4, lines 1+). Udall does not specifically teach the portions of the core engine shroud 14 (compressor, combustor/gas generator) are integrally joined. However, integrally

joining is well known in the art as suggested by Stuart who shows an integral core engine shroud 14 for the compressor and combustor/gas generator. Furthermore, it would have been obvious to fabricate the portions of Udall et al separately and join them for the integral assembly, in order to create a rigid and/or strong assembly. As for making the integral casing portions of the same material, this is within the ordinary skill in the art as an obvious matter of employing the workable materials used in the art and/or for consistency in thermal expansion properties.

6. Claims 3, 4, 9, 10, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over either of Udall et al (5,409,184) in view of Stuart (4,790,133) or Stuart (4,790,133) in view of Davies et al (3,720,060) or Springer (6,532,731), as applied above, and further in view of Allen et al (6,109,022). The prior art do not teach an integral bearing mount portion configured to provide integral damping to a shaft bearing. Allen et al teach an integral bearing mount portion 29, 36, 38 configured to provide integral damping via resilient member 36 to a shaft bearing 40. Allen specifically teaches making portions of 36, i.e. 45 and 34 either unitary or separate items (col. 3, lines 46+). Hence, this is teaching of the equivalence of making unitary/integral or separate. It would have been obvious to make the entire bearing mount portion integral/unitary as being within the ordinary skill in the art for simplification and/or as an equivalent structure.

Response to Arguments

7. Applicant's arguments filed 10/05/2005 have been fully considered but they are not persuasive. Applicant's arguments regarding the prior art in the "General Comments on the Prior Art" as not persuasive as applicant presumes that because multi-piece casings are conventionally used in the art, that there are no integral casings. To assume the contrary, one's knowledge of the art would have to be infinite to cover the entire spectrum of the prior art. Furthermore, applicant's usage of the word "integral" does not require that the pieces be made in only piece but specifically covers applications where the pieces are integrally joined after construction, such as by welding. Hence, the issue is significantly broader than what is argued by applicant, i.e. whether one of ordinary skill would make the pieces integral **or** a single unitary piece and not just using a single unitary piece.

8. Applicant's arguments with regard to Springer are not persuasive, arguing that the annular combustor could not be placed into the nacelle if the nacelle were a single piece. However, as addressed above, making the nacelle an integral piece is illustrated by Springer and there is no requirement that that nacelle be formed prior to assembly. Hence, as the nacelle/casings are illustrated in an integral fashion, one of ordinary skill in the art would recognize that the casing would be fashioned to produce an integral casing at whatever time or location desired to permit assembly. Note that segmented pieces do not preclude the integral joining.

9. Applicant's arguments regarding the Stuart combination is not persuasive as Udall et al specifically show the frame 34 is integrally attached to both the fan case and the

inner case (col. 4, lines 1+). Note that when the frame is integral 34 with the casings, the whole casing assembly is then integral. Applicant argues that casing cannot be integral because the frame 33 is attached to the engine after completion of the engine assembly process. This is not persuasive as applicant's specification specifically covers the integral joining of several casing pieces by processes such as welding to form the integral casing. Hence, the timing of when the casing is made integral is immaterial for a product claim so long as the structure is integrally formed.

10. Applicant's arguments regarding the Udall et al combination are not persuasive as Stuart specifically illustrates an integral core engine shroud 14 for the compressor and combustor/gas generator. Furthermore, it would have been obvious to fabricate the portions of Udall et al separately and join them for the integral assembly, in order to create a rigid and/or strong assembly.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax numbers for the organization where this application is assigned are 571-273-8300 for Regular faxes and 571-273-8300 for After Final faxes.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thorpe, can be reached at 571-272-4444.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861. General inquiries can also be directed to the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at http://www.uspto.gov/main/patents.htm

Ted Kim	Telephone	571-272-4829
Primary Examiner	Fax (Regular)	571-273-8300
December 7, 2005	Fax (After Final)	571-273-8300
Technology Center 3700 Receptionist	Telephone	703-308-0861
Patents Assistance Center	Telephone	800-786-9199

REPLACEMENT SHEET

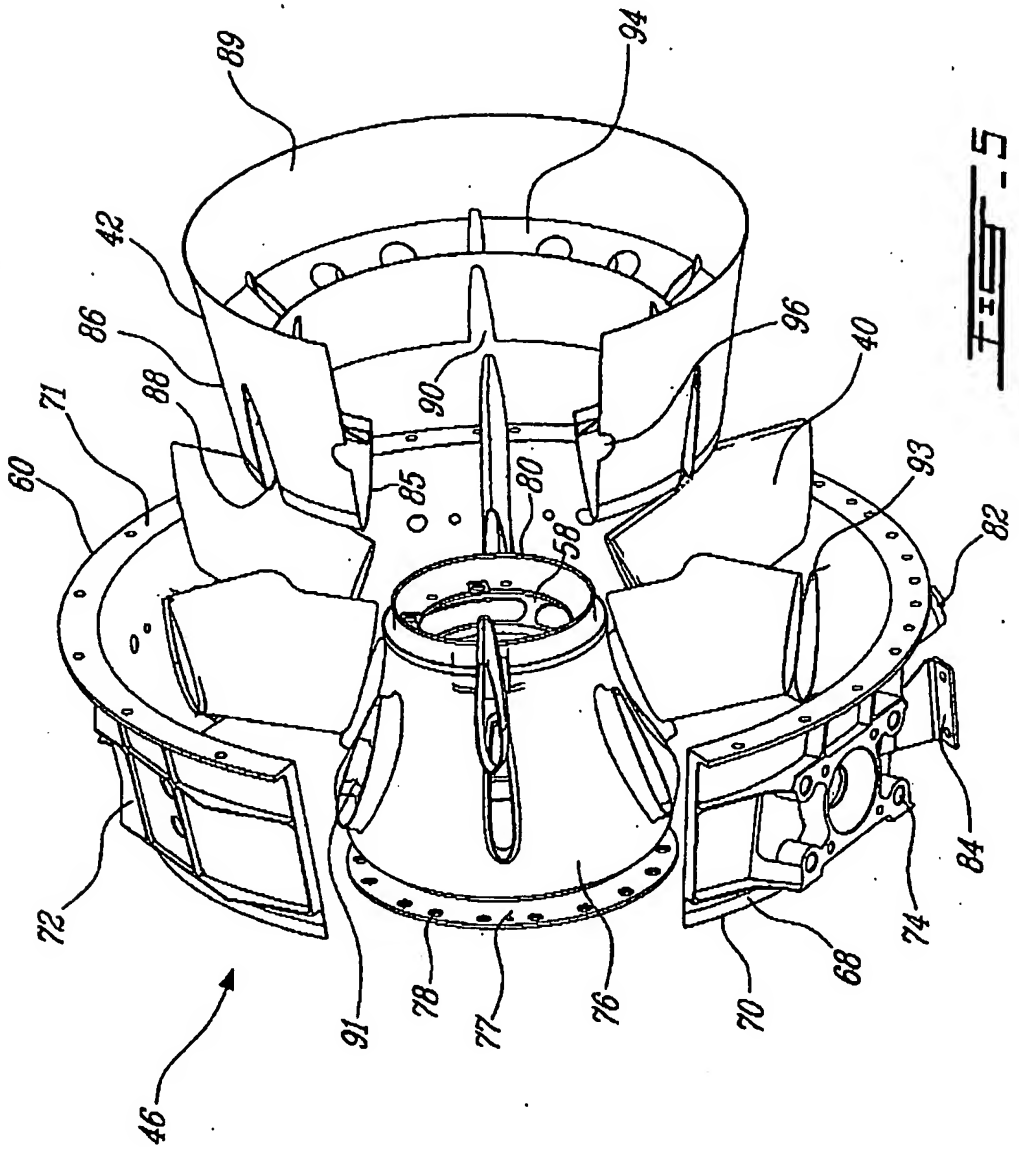

FIG-5

Entry Approved TR 11/30/05